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Servers

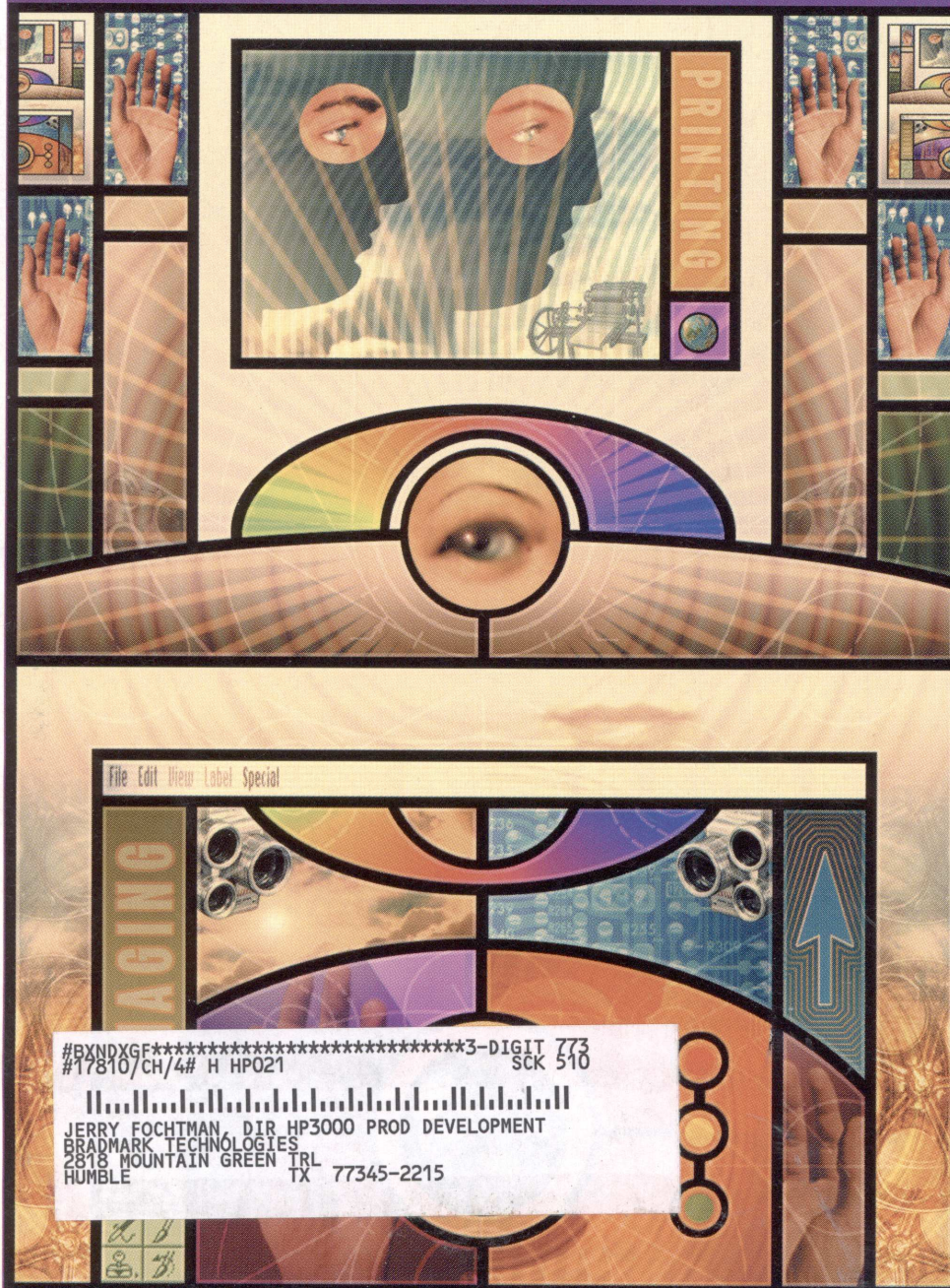
Workstations

Channels

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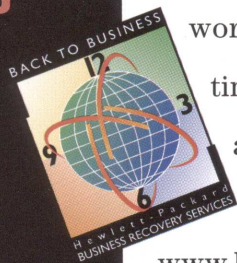
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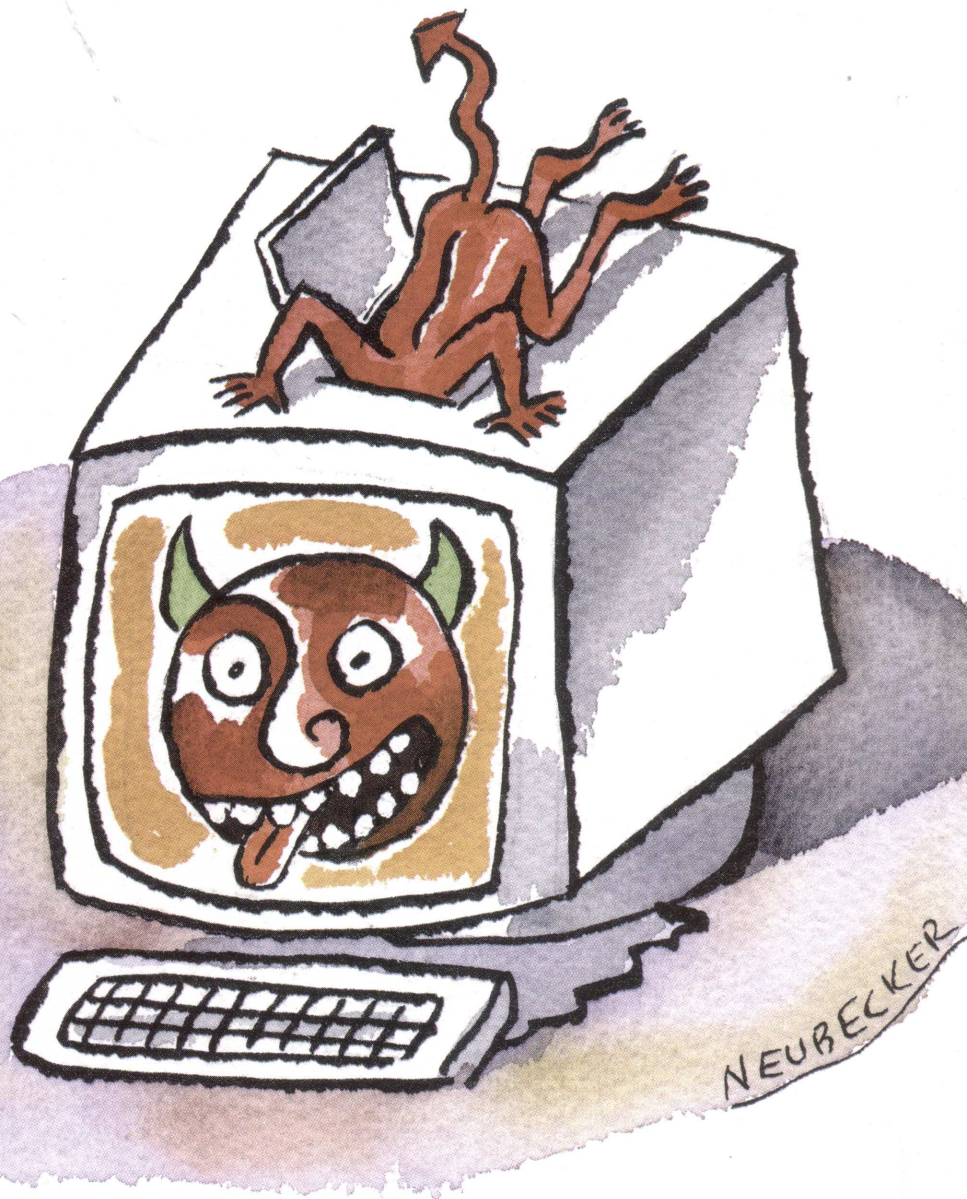
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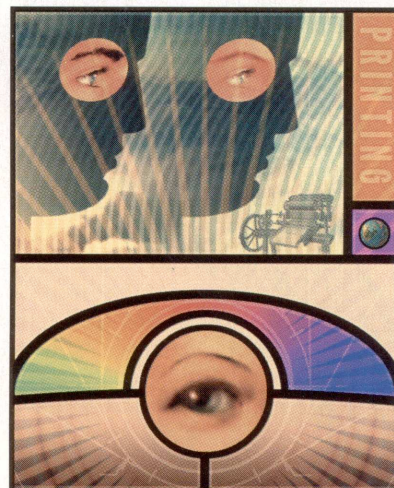
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HP PROFESSIONAL ISSN 0896-145X is published monthly by 101communications LLC, 9121 Oakdale Ave., Suite 101, Chatsworth, California, 91311. Subscriptions are complimentary for qualified U.S. and Canadian sites. Periodicals postage paid at Chatsworth, CA 91311, and additional mailing offices.

For address changes and other subscription information in the U.S.: hp@meda.com or call (800) 306-6332. Outside the U.S., call (847) 291-5212 or fax (847) 564-9002. In the U.S., missed issues must be claimed within 45 days of the publication date; outside the U.S., missed issues must be claimed within 90 days. Editorial and advertising sales offices at 1300 Virginia Dr., Ste. 400, Fort Washington, PA 19034 • tel: (215) 643-8000, fax: (215) 643-8099.

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Canada Post International Publication  
Mail Canadian Distribution Sales Agreement #IPM0264431

Printed in U.S.A.



Corporate Headquarters  
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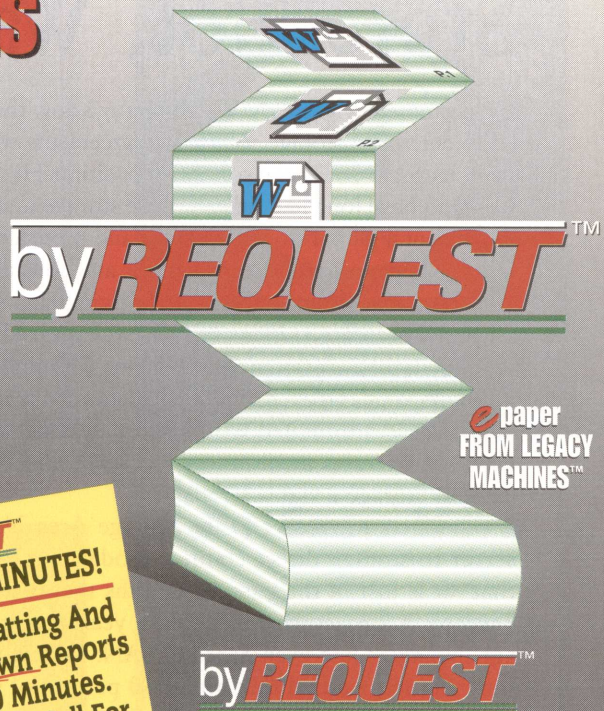
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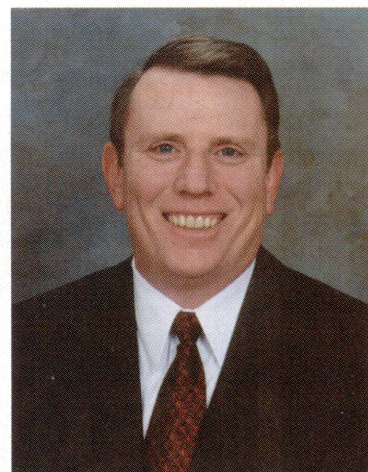


# Store Not, Want Not.

HP customers who follow the company know that HP has invested in building and staffing an entire division devoted to enterprise storage solutions. Agreements with Hitachi for disk array hardware and the purchase of Transoft, with its SAN Manager software, position HP as an enterprise information infrastructure supplier. "IBM and Compaq have long had an enterprise storage unit, but now companies like HP, Sun and Dell are moving quickly to implement a global storage strategy and presence," according to Farid Neema, President of Peripheral Concepts, an independent storage industry analysis and consulting firm.

Two converging concepts are driving this storage management evolution. The first is the need for bandwidth. More data is being requested, captured and stored than ever. Enter Fibre Channel with a 100MB+ per second data transfer pipeline. Fibre Channel is emerging as the technology of choice for moving massive amounts of data over extended distances. Current high-bandwidth SCSI channel connections are limited to several meters between server and storage device. Fibre Channel operates at distances measured in kilometers, making off-site and shared campus storage a viable strategy.

The second concept is the Storage Area Network (SAN). They replace the 1:1 server-to-storage direct connect model that exists today. Neema notes, however, that "it is just in the past 12 months that SAN has become a recognized term and concept. A survey we conducted a year ago indicated that only 40 percent of storage managers had even heard of SAN. Today, that number has increased to 70 percent. In fact, we find that about 50 percent of storage managers today are seriously studying SAN technology, and approximately 25 percent are planning a move to a SAN infrastructure."



## THE HP STORE-Y

If you're a total HP shop, you should review HP's recently announced SureStore E product family which addresses midrange customers and includes the HP SureStore E Disk Array FC60 and The HP SureStore E Disk System SC10. The FC60 is a native Fibre Channel RAID array offering high availability, terabyte capacity and a high-speed data transfer rate. For large HP environments, the new high-end HP SuperStore E Disk Array MC256, which replaces the Symetrix offering from EMC, can help you create a powerful storage subsystem with no single point of failure. This solution is ideal for mission-critical, high-volume enterprise applications and databases.

Each of the HP disk array solutions are supported, from a management and administrative perspective by SAN Manager, the flagship product from HP's recent acquisition of Transoft Networks Inc. SAN Manager allows management of a common pool of storage devices. And it works in heterogeneous Windows NT and UNIX environments. By sticking with one vendor for your entire computing and storage environment, you gain the advantage of minimal compatibility issues. The flip side, particularly since SAN is still an emerging technology, is that you will be committing to HP's vision of shared storage.

## SAN-SATIONAL

Although HP has dropped its agreement with EMC for storage solutions, there are a number of vendors in the storage arena who are working to make their hardware and software work in a heterogeneous environment. SAN architecture and technology is a high-priority component of their market strategy, with interoperability and, hopefully, open standards as a key enabler.

Some estimates place storage capacity and management at 50 percent to 70 percent of the overall financial impact of an enterprise computing system. With SANs, you'll be able to add disk and tape capacity incrementally, as your needs grow, without necessarily adding more servers. When you sit down to plan, consider working with a storage consultant, one who has their finger on the pulse of SANs and storage technologies in general. You want to make sure that, whatever strategy you choose, you're doing so with confidence.

– Daniel J. Carson, Vice President, Marketing and Business Development  
Open Systems Solutions (OSSI) Inc.



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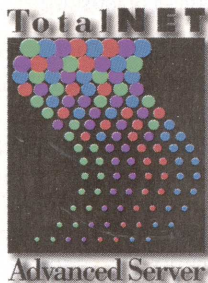


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The race into the 21st Century is well underway, and as we move into the new millennium, the proliferation of the Internet will continue. Leading industry analysts report that e-business transactions could reach more than \$1.3 trillion by 2001, driving HP users across all industries to implement new e-services solutions and enhance their existing enterprise initiatives to include the Web.

While this may sound straightforward, Internet projects are complex and often underestimated. Recent research reveals that as many as 75% of e-business projects may fail due to a lack of understanding of the technology involved and poor strategic planning.

Effective e-solutions involve much more than designing Web pages. To succeed, Internet projects must be linked to overall business strategy and encompass the full value chain – from electronic storefront, through internal/external partner relationships, to back-end legacy integration. This requires an array of outside partners, the sum of whose capabilities outshines what any single vendor can bring to the table.



PHIL WOUDENBERG  
DIRECTOR, HP PRODUCTS AND SERVICES.

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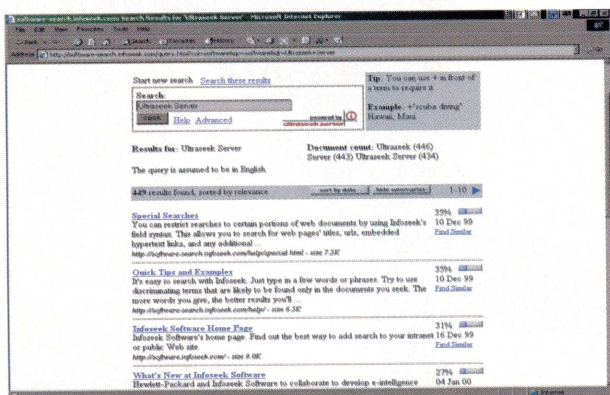
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It has been given a mandate to collect and catalog the wealth of distributed information scattered across enterprise intranet sites. For HP-UX administrators charged with such a task, Ultraseek Server, an intranet search solution from search engine veteran InfoSeek Software may well be a must-have.

According to InfoSeek Software Vice President and General Manager Andy Feit, the same principles that apply to cataloging and searching the public Internet can readily be transposed to private intranets.

"If we can crawl and index and search the entire Web, then we can probably do a pretty good job on your private network," Feit explains. Enter version 3.1 of Ultraseek Server, a ver-

sion of InfoSeek's search engine technology that has been adapted for use on corporate intranets, as well as on large public Web sites. InfoSeek's Feit says that Ultraseek Server offers an advantage over solutions that attempt to catalog intranet site information.

Ultraseek Server can intelligently "tune" a document or datatype's revisit frequency, rather than randomly refreshing its catalog to index new documents or data. Consequently, if a specific document or documents change frequently, Ultraseek Server automatically refreshes those documents on a more frequent basis and without programmed intervention.

Because it also leverages InfoSeek's Natural Language Interface, end users have only to submit queries with specific phrases or keywords – just like in the world of Internet search – and Ultraseek Server returns the most relevant results. At the same time, end users are provided with the option of drilling down and querying the results of earlier searches.

For the security conscious, Ultraseek Server can also recognize and negotiate both firewalls as well as password-

protected network resources, and administrators have complete control of the information and resources that the InfoSeek Spider catalogs.

Ultraseek Server includes its own Web server and page building scripts, so content providers can tailor it to suit their own needs. And Ultraseek Server 3.1 also natively provides support for Extensible Markup Language (XML) documents, which are rapidly emerging as a standard means to define, structure and deliver Web-based content.

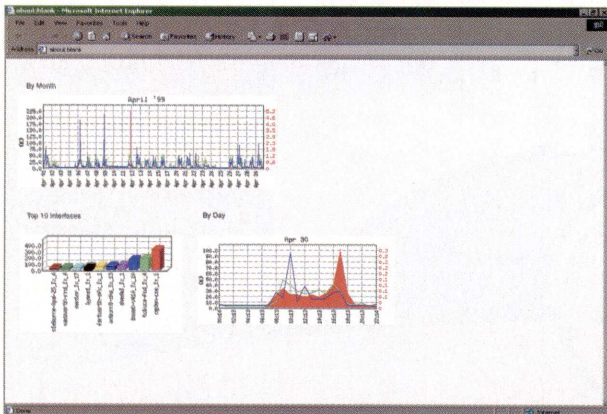
Ultraseek Server 3.1 is now shipping for HP-UX, but users of the product on other platforms have been impressed with its performance. "We investigated several packages to replace our first-generation search engine," explains Mark Swenson, a Senior Web Technologist for Boeing Co.

"For some products, there was extensive up-front work required to initially build the index, and some had complex query languages that were not Internet-friendly. Ultraseek Server was selected for its ease-of-use, its intelligent spider, simple query language and solid support."

— Stephen Swoyer,  
Contributing Author



## NeRD Extends HP OpenView Manageability



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**T**he OpenView suite from HP is a good solution, but it still has room for some improvements. The Network Reporting Depot, or NeRD, from Onion Peel Software is one solution that can help smooth over some of OpenView's rough spots.

OpenView is great at providing a comprehensive, enterprisewide network view, says Doug Allison, Vice President of Business Development with OPS. But it sometimes doesn't natively provide the granularity of information that network managers often need.

NeRD works by leveraging OpenView's object database as a means to collect and present information pertaining to enterprise LAN and WAN interfaces. NeRD is module-based, and cus-

tomers can order additional modules to suit their network environments. NeRD ships with a base module, that includes LAN/WAN reporting statistics support.

"The initial release includes all of the LAN/WAN reporting statistics, and we're working on Frame Relay, ATM and router specific modules," says Allison. "Following these, we plan to release a server module, which will have the ability to look cross platform, and our expectation is to support NT from a collection standpoint and still run on HP-UX." And because NeRD integrates with HP's Network Node Manager, Allison says that the product minimizes traffic on, and disruption to, enterprise networks.

Allison says that NeRD's pricing schema is salutary for most IT budgets, as it is priced on a per module and not a per device basis, which means that as the size of an enterprise network grows, the cost of managing it with NeRD remains the same.

"It runs on both Solaris and HP-UX and on those platforms, it's dependent upon the operating system having Network Node Manager on it," he explains. "Our second release will be a Linux-based product that will be able to run

without Node Manager."

According to Rob Enderle, a senior analyst with the Giga Information Group, tools like NeRD can often help to augment inherently complicated network management frameworks such as HP OpenView and make them easier to administer as well.

"IT spends most of its time trying to get its arms around its network environment and frameworks [like HP OpenView] and provide a comprehensive ability to do that," Enderle says. "The complexity of these frameworks has been that implementing them and actually using them has been prohibitively time-consuming."

Because NeRD can provide a nitty-gritty, low-level view of what goes on in LAN and WAN environments, Enderle indicates that it could be an invaluable way to extend the management efficacy of the HP OpenView environment.

"Any tool that can assist in the management and reporting in these environments is really what's needed," he observes. "Otherwise, for a lot of low-level things [network administrators] have to go out and do physical discovery."

— Stephen Swoyer,  
Contributing Author





# A New Watermark For Enterprise Printing



As companies move to  
more distributed business  
environments and away  
from centralized printing  
sources, they are looking  
for ways to better manage  
enterprise-printing needs.

Felix Gorrio



**"R**ather than a data center model in which companies print and distribute, many companies have moved into more of a distribute and view environment," says Herb VanHook, Vice President of the Meta Group. "Some companies have been looking for ways to have localized print capabilities with their network printers." Such an environment also enables users to view documents before printing, then print only what is necessary, while maintaining some documents in an electronic format. In some instances, these companies are trying to connect network printers with fax machines, personal and mainframe computers, and, in some cases, the Internet.

These disparate systems often have widely different printing architectures. "You need a way to route this information in a secure and guaranteed fashion," VanHook says. For example, the Idaho Department of Health and Welfare (IDHW) had a mainframe and numerous network printing systems spread across 100 locations throughout the state. With three separate print technologies, the company never looked at overall solutions, so they needed three separate people to maintain each print environment. In short, IDHW's various distributed print systems were over-duplicated making them, not only difficult to manage, but costly to support.

#### PRINTING STRESS

Like many business enterprises, IDHW didn't have anyone in-house who could offer an overall view of the company

printing systems and needs. Such an overall view can often reveal ways for companies to print more efficiently and save money. Enter HP's Digital Workplace Services (DWS) Group. DWS helps clients make such aggregate assessments of their printing needs, capabilities and options. They also track applications that create output, the path that output travels to reach print devices, and output volumes from each application. The group then recommends improvements to reduce network size, eliminate redundant printers, and implement a centralized model of distributed printing.

#### E PLURIBUS PRINT

To help IDHW to better manage its printing needs, the DWS group designed a new print architecture that consolidated multiple print systems into a single architecture. HP worked with Levi, Ray & Shoup (LRS), a provider of IBM host print-management solutions. "LRS provided a centralized point of control in what they needed for that environment," says Jaimie Houser, Service Generation Manager for HP's DWS group. "There were literally applications that could print only on specific networks on specific printers. They had printers side-by-side that each had a specific part they were printing. And they couldn't trade back and forth."

Now, using LRS' VPS enterprise-management software, IDHW has a single point of control for printing across the network. The agency's new printing architecture enables

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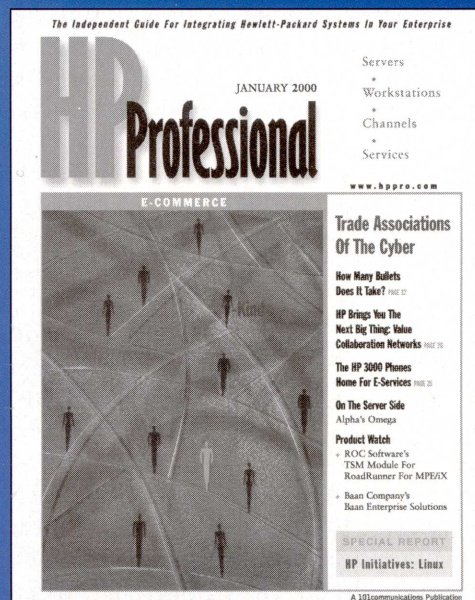
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users across the state to print mainframe or network files to the closest department printer. In addition, the state agency now has a single point of control that allows it to determine costs and to maintain and support its environment more easily and with fewer resources.

Companies need to get printed materials to users quickly and conveniently, Houser says. "A lot of times they want to look at centralized printing, and then go to a distributed network," Houser explains. "We analyze the specific host environment. Then we also take a look at the processes within the distributed environment and the critical users, then determine the most efficient way to get information out into that environment. We also look at the new output environment and finding out if it is a cost-effective environment for that user. A lot of companies don't understand what it's costing them in that type of environment."

### THE INS AND OUTS OF ENTERPRISE PRINTING

In mid-December, HP's DWS group and LRS formed a strategic alliance. Company officials expect to leverage HP's network printing knowledge with LRS' output printing solution expertise. Together, the companies expect to help firms and agencies like IDHW that are trying to integrate their host and local area network printing environments. The two companies had worked together for several years, but there hadn't been any formal arrangement.

"We made the decision to partner specifically with HP Digital Workplace Services because they're the only service to offer a precise device-independent methodology that first assesses the customers' printing needs and then finds a solution to match their specific requirements," says Daron Worth, LRS Business Development Manager. The combination with LRS puts Hewlett-Packard far ahead of other printing companies, most of which are still focusing on the hardware end, according to VanHook. Hewlett-Packard's expertise has always been in hardware, but HP bought Dazel Software in May of 1999 to gain expertise in the personal computer market.

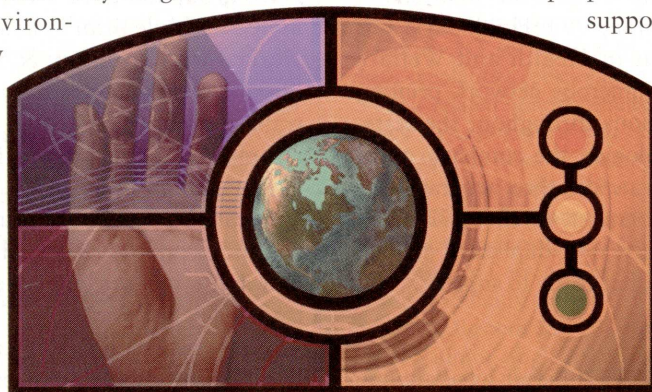
That acquisition still left a hole in service to companies that rely on mainframes for much of their computing needs – hence the strategic alliance combining HP's network printing expertise with the host output printing software provided by LRS. Under this new alliance, HP's DWS printing and imaging professional services will recommend and implement LRS' VPS enterprise-management software as part of its host print-services offerings. IDHW is the only enterprise using the HP/LRS partnership to date, but several other deals are in the pipeline, according to LRS' Worth.

### A NEAR-HIT

"I've seen a trend in which organizations want to migrate internal production reports off central printers to LAN printers in an effort to deliver critical information closer to users," says John Curtis, Consulting Manager for HP's Digital Workplace Services Division. "They are seeking outside expertise on how to do it simply and efficiently." LRS provides the architecture to print from any application, as long as an OS/390 system is installed somewhere within the architecture in which the LRS software operates.

"Applications are typically installed and implemented, then people think of printing last. The printing support is built into the application,"

Worth says. "What LRS does is separate the application from printing responsibilities, allowing the management and movement from any application to any printer on any network. Now this includes data mining, faxes, Web browsers. The movement to TCP/IP is fueling distributed printing," Worth adds.



### A HIGH WATERMARK

Although traditional printing companies are still focusing on the hardware, HP does have competitors for this market, VanHook says. For example, Mobius Management Systems Inc.'s Electronic Document Warehouse products store and integrate documents and transactions of different formats on a variety of computing platforms and electronic storage devices, making them quickly available via corporate networks and the Internet. However, the Mobius system doesn't have the same hookup with localized printers, according to VanHook.

Additionally, VanHook questions how large the market for the HP/LRS partnership might be. "This type of enterprise-wide solution probably isn't needed by 70 percent of companies," he says. "It's primarily needed by global companies that have offices in multiple marketplaces, like manufacturing companies and large financial services firms."

But Worth counters that the business combination is ideal for customers who require centralized control over their entire enterprise print environment. "You always have companies with a third of [printing] technology that is outdated, a third that is present-day and a third that is coming in to be accepted," Houser adds. "Everybody thinks of printing last because they expect it to be built into the operating system. In today's systems, there are eight to 10 operating systems and three to six networks that connect those applications." ♦

*Felix Gorrio is a writer for the Washington News Bureau.*



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# Achieving Success With Workflow And Imaging Standards

More often than not, we speak of standards as taking a lot of time to develop and being difficult to implement. And because of the length of time it takes to develop the standards, the technology may have already leaped far ahead of where it was when the standards development activity was initiated. Fortunately, in the workflow and imaging area, this scenario is not the case.

## Betsy Fanning

Two major forces, the Workflow Management Coalition (WfMC) and the Object Management Group (OMG) have been working since 1993 to develop specifications to allow for interoperability between workflow products and the objects or tasks which are passed between systems. The WfMC began the standards development process by developing a glossary of terminology that allows users to speak consistently with workflow vendors in order to describe the issues they are trying to resolve through the use of workflow technology.

### WORKING ON WORKFLOW

The Workflow Reference Model identifies different components of a workflow system establishing the architecture and the required interfaces between workflow clients and applications. The Workflow Process Definition defines a formal separation between development and runtime environments, enabling a process definition to be generated by one model-

ing tool and used as input to a number of different workflow products. By implementing standards-compliant workflow products, an organization is not tied to only one vendor, but is able to acquire the best products to suit its needs.

Just as technology is rapidly evolving, workflow standards must continually change to accommodate technology advancements. The WfMC is developing extensions to the original specification to allow for the incorporation of XML, so that these standards will become a fundamental part of e-business in the enterprise. This will allow businesses to dramatically transform the way they work by making use of the Internet and e-commerce to increase their sales.

While having the specification is good for the adoption of workflow, making sure they are properly used in products is of even greater importance to users. User's must protect their investment in the technology and

allow for the seamless exchange of work tasks throughout the enterprise.

The WfMC is in the process of establishing an independent Conformance Test Facility hosted at the University of Muenster in Germany. Initial conformance testing will focus on the interoperability specification which describes how workflow engines can communicate or interoperate to coordinate and execute tasks specified in the workflow process. Rather than relying on product statements made by vendors, this independent assessment will assure products have been properly implemented utilizing requirements of the specification.

The OMG's efforts have focused on the development of the Workflow Management Facility (WMF) which, among other things, will allow users to define nested workflows (a process running on one standards-compliant product can trigger and monitor a workflow process running on another compliant product) that cover the entire enterprise regardless of its size or complexity of the workflow schema.

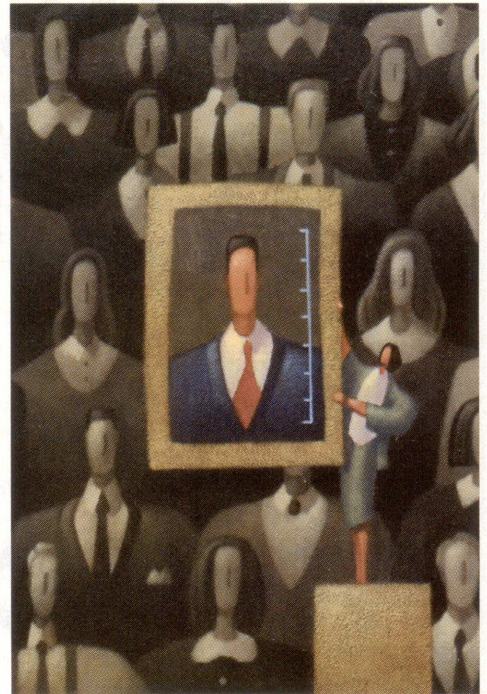


Illustration by Rob Colvin/SIS



The Workflow Management Facility relies heavily on the Process Definition Interchange developed by the WfMC that allows a compliant product to output a workflow schema to another compliant workflow product. Through a productive and close relationship between OMG and the WfMC, a formal CORBA/Workflow standard has been developed. And OMG members continue to develop the workflow standards.

A maintenance revision was approved at the OMG meeting in November 1999. At that same meeting, the OMG Workflow Working Group (consisting of key WfMC members and OMG members) agreed to integrate their metamodels with extensions to the metamodel for workflow. This will remove the barrier between process and information modeling and will allow modelers to define process and information models that understand each other and potentially be able to do the modeling exercise using one tool.

In the late 1980s, AIIM International was very active in the development of electronic imaging stan-

AIIM has made available a number of standards in this area that provide specifications for quality control of image scanners, file formats, indexing of page zones, indexing elements for retrieval of the images, verification of stored data, electronic folder interchange, and scanner APIs. There are a number of technical reports that help users to understand how to use imaging for public records, how to purchase and implement an electronic imaging system, and how to make sure images are legally acceptable records.

#### **THE PACE OF THINGS TO COME**

While the pace of imaging technology and the development of electronic imaging standards has slowed since the early 1980s, there is still an opportunity for some standards to be developed, especially in the areas of quality and archiving. As imaging expands to the Internet and enterprises implement the use of color imaging to provide a more accurate representation of the documents, we can expect to see activity in the development of imaging standards increase.

In September 1999, AIIM initiated a study group to begin exploring standardization needs for color imaging. This study group will hold another meeting at AIIM 2000 (April 9-12, 2000) in New York to further their discussions. Additionally, the AIIM Electronic Imaging committee will explore the need to develop additional standards in the quality area and recom-

mended practices for the operation of imaging systems to benefit end users who are implementing imaging and service companies that are converting documents to images.

These workflow and imaging specifications and standards have been successful because they establish a common language that is critical in establishing processes and acquiring

equipment, software and services needed to implement technology in an enterprise. In the workflow area, the specifications have allowed true interoperability between vendor

**Conformance testing  
will focus on the  
interoperability specification  
which describes how workflow  
engines can communicate or  
interoperate to coordinate  
and execute tasks specified  
in the workflow process.**

products, so that a user or system integrator can implement a best of breed system that businesses truly need. These standards and specifications allow enterprises to more easily and effectively implement workflow and imaging while allowing the market to grow.

Although there are completed standards and specifications for workflow and imaging, there is still work to be done. Users and technologists need to demand and use products that comply with the available standards and specifications to protect their technology investment and allow multiple workflow products to operate seamlessly in the enterprise.

In doing this, they are bringing an awareness of the need of standards to the vendors. Vendors need to be aware of the standards that exist; get involved in the development of them and any extensions to them; and implement them in their products.

A vendor's involvement in the development of standards and specifications helps to shape the industry. The bottom line in making the business successful is through a commitment to industry standards.

*— Betsy Fanning, Manager  
Standards Program  
AIIM International*

**The WfMC is developing  
extensions to allow for  
the incorporation of XML,  
so that these standards  
will become a fundamental  
part of e-business in  
the enterprise.**

dards. In order to keep pace with the technology, several committees were established to address the three major aspects of imaging:

- Input: how to get the paper documents converted.
- Output: how to get them onto paper or distributed to others.
- Software and systems: how should we index the images to find them later.



# An Outcry For Output Management

John Curtis

Output management was once an obscure IT initiative within a few select companies. Today, it has become a mainstream IT initiative. IT executives are getting smart about print technology and are focusing management's attention on output systems as a way to drive strategic business value and save millions in hard costs and productivity. They're also realizing that overlooking their output environment across the company can bring about substantial mission-critical issues that can hinder business operations. Consider these real-life mission-critical examples:

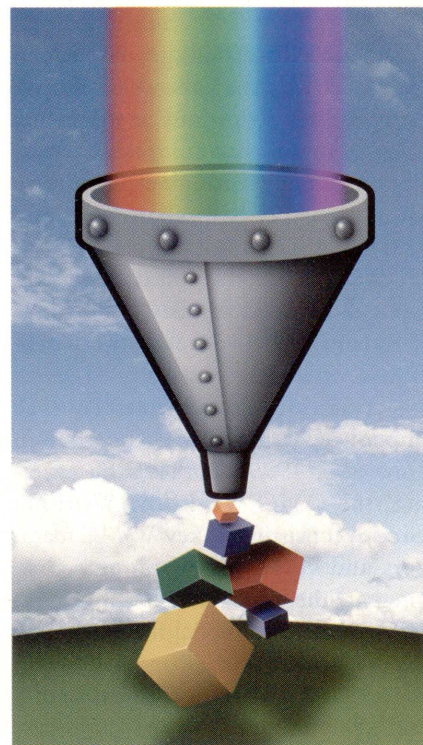
- A company's mainframe print system broke down for three days during its critical year-end reporting period, effectively halting the printing of year-end business reports and the distribution of mission-critical data to users.
- Another company spent millions of dollars and several years to implement an ERP application to link critical business systems and allow for remote printing of payroll checks. When the company went live with the ERP application, they couldn't print checks on the new system. IT eventually had to re-route the ERP

system data back through the mainframe and produce the payroll checks using the old process on centralized production printers.

- In a related example, a company couldn't output its pick lists and warehouse distribution forms. This output problem halted shipping of its product, reducing product availability during its key selling period that negatively impacted company sales and revenue. Additional print management problems abound. And recent trends only increase the probability of these mission-critical issues occurring, therefore creating a critical sense of urgency to integrate and optimize enterprise printing.

## OVERFLOW ERRORS

The information explosion continues to inundate companies with volumes of digital information from the Internet, Web and e-mail. This information flows to users on the desktop and is output on distributed printing and imaging systems. The amount of digital information will grow at unprecedented rates. By 2004, 70 percent of all business information will be digital. Yet, this digital overload is expected to double the printing vol-



umes in distributed environments. This trend is apparent as companies implement digital based e-mail systems for the first time and see their distributed print volumes triple. And so waves of digital information sweep over aging, unmanaged output infrastructures that are no longer able to handle the strain.

That's why complex documents and mission-critical processes are being deconstructed and redesigned to take advantage of electronic distribution and digital imaging. E-distribution and imaging enables companies to accelerate access to information and speed business transactions. Companies migrate mission-critical reports off production printers and distribute them to LAN printers close to users. ERP applications also re-route critical output to remote LAN printers.

In some situations, companies will rely on printers designed for DOS to print high-volume, complex graphic documents. And a lack of standardization and control impacts overall performance significantly.

Unfortunately, most companies' output infrastructure is composed of



distinct, separate islands of digital output that delays, rather than speeds, information delivery throughout an entire enterprise. For example, main-frame or host print environments are not integrated with LAN printing. And ERP applications are not optimized for printing.

### IN THROUGH THE OUT DOOR

The key to effective information delivery throughout an enterprise, then, is an integrated output management system. "In any industry, a company that can harness the output of digital information to speed up its operations is going to outperform competitors, create new standards, and make a lot of money," says George Stalk of the Boston Consulting Group.

As IT managers recognize the urgency to upgrade aging print infrastructures, optimize digital technology and define the role of output in strategic business initiatives, such as ERP and e-commerce, companies are seeking partners who can define strategy, design enterprise print architectures, integrate information delivery systems and lower the risk of a transition to new output management solutions.

HP's Digital Workplace Services is a professional services group that teams with customers to help them optimize their printing and imaging environments. A prominent forest products manufacturing company with plants geographically dispersed throughout the United States, needed to upgrade the servers that managed their business-critical applications. Server performance and capacity were inadequate to the point that user productivity was being affected.

The migration path dictated by the server upgrade required the company to replace its existing output-management solution. Any new output-management solution had to integrate seamlessly with the company's SAP R/3 infrastructure as well as several UNIX standalone applications. In addition, given the business-

critical nature of the output generated by the company, the new solution had to be transparent to the users.

HP Digital Workplace Services was brought in to provide the customer with an enterprisewide infrastructure and output-management solution that ensured reliable delivery of mission-critical output. HP's consultants provided the company's project team with extensive knowledge of enterprise printing, output management and SAP

**By 2004, 70 percent of all business information will be digital. Yet, this digital overload is expected to double the printing volumes in distributed environments.**

R/3 applications. The consultants designed and tested a real-world model that reflects the company's unique output-management needs.

### A DAZZLING DISPLAY

This effort led to the early company-wide deployment of Dazel's Output Management solution with no interruption of business-critical functions. The HP consultants helped manage the implementation of additional output-management solutions to ensure high-availability and backup.

The Idaho Department of Health and Welfare (IDHW) was having difficulty managing and maintaining the reliability of its distributed host print system, which involved several generations of distinct host print solutions and data streams. Several full-time IT resources were required to keep the system up and running. The organization wanted a unified enterprise print architecture that would integrate host printing into LAN printing.

They also needed to simplify and consolidate the solutions and printers in their output environment. HP consultants designed a new enterprise print architecture, identified an ideal solution to provide them the standard-

ization and control they lacked, and then implemented the output-management solution across their enterprise.

HP offered us more than HP product expertise by providing the ability to analyze our entire printing environment, regardless of the software and hardware brand we were using to provide us with an integrated, enterprise solution. They also brought the industry knowledge to bring in the right solution partner," says Jerry Bassett, administrator for IDHW's Information Technology Services.

### AN OUTLOOK ON OUTPUT

Here are some questions IT executives can ask themselves to assess the state of their output environment:

- Am I looking at my output environment as a way to drive strategic business value?
- Do I have an enterprise print strategy that will link disparate islands of output and implement an output-management system?
- Does my output environment currently use different print systems, print streams and protocols that create a complex enterprise print environment to support and manage?
- Is our company ERP implementation optimized to ensure that business-critical output will be generated at the right time and the right place and in the right form?
- Do I need to eliminate legacy data streams (XES/UDK, etc.) or migrate print solutions from SNA to TCP/IP?
- Is my IT support staff or Help Desk spending too much time on printing issues?
- Do I have an old, aging printing and imaging infrastructure that is inadequate to meet the information exchange needs of the company?

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for Hewlett-Packard's Digital  
Workplace Services.*



# Act Locally, vi Globally

Last month we looked at vi's command filtering ability. This month, let's take a look at the global feature of vi. Global is actually an ex command, but all UNIX gurus

know that. For the rest of us, vi is the visual mode (screen editor) of ex, the line editor.

Because many vi commands can also act on more than a line of text, it might be more accurate to say that all editing that acts on less than a line are done with vi commands.

Anytime a command starts with a colon character, it is an ex command, the colon is not really part of the command.

The colon just tells vi to accept up to a new line as an ex editing command.

## :G IS FOR GLOBAL

The global command can be spelled out, but since no other commands start with a g, only the g is needed. Because it's an ex command, we could say the command is :g. From here on, we will not bring up this distinction, but in examples will always put a colon before ex commands.

The global (vi) command accepts a pattern and command as arguments. The format for the command is:

```
vi/pattern/[commands]
```

Note that the [ ]'s mean that the commands are optional. Global will perform the command supplied (or print as a default if none is given) against all lines that contain a match for the supplied pattern.

For example, both of these commands do the same thing:

```
vi/^#/  
vi/^#/p
```

The pattern /^#/ matches lines whose first character is a pound (#) symbol. Both commands will display the matching lines, and a prompt telling you to 'Hit return to continue,' meaning remove the display of matching lines and return to vi mode.

We have been using the term pattern, since that is what the documentation uses. In reality, the characters we supply as the pattern have the meanings of regular expressions, or RE for short.



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## THE USUAL SUSPECTS

Another way to write the syntax for this command is vi/RE/p which looks suspiciously like grep. And in fact, is where that command has its roots.

As an example of supplying a command argument to global, let's use the delete (d) command:

```
vi/^#/d
```

The command above reads something like "delete all lines that start with a pound symbol." If you are familiar with ex at all, you would know that almost all ex commands accept a line address or range of line addresses as a prefix. It might seem that the global command already means act on all lines that contain a pattern, thus would not need an address. In reality, this makes the command even more powerful.

You can use standard line addressing symbols to select a range of lines in a file, then use the global command to only act on lines within that range that contain a pattern. Sort of a hierarchical addressing. For example:

```
:12,/END/g/^#/d
```

The command above uses a line range (line 12 through the next line that has the string 'END' in it) to restrict where the global command will apply. In

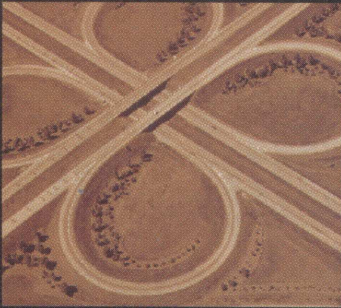
other words, the command above translates into English as 'delete all lines from line 12 down to the next 'END' string that begin with a pound symbol.' If you recall my previous column, we showed a way to do exactly the same thing with command filtering (:12,/END/!grep -v '^#'). But I think that using global is easier, though it is limited to those commands that ex can do.

## POUNDING SOME BEERS

As a more complex command argument example, let's suppose you have some Perl code or a shell script that you are writing in vi. You have used the # symbol to start all comment lines. It's getting late and after several beers you can't seem to find the comment lines.

In a moment of inspiration, you decide that if you put a whole line of # signs above each comment line they would be easier to find.





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To setup for this, edit in the first line of pound symbols. Lets suppose it was done on line 2 of the file. What we now want to do, is copy line 2 to every location above lines that start with a pound symbol. The **ex** copy command can do it once. Using the global command allows us to perform that copy to all lines matching the pattern:

```
:3,$g/^#/ 2 co -1
```

This reads as: On lines 3 through the end of the file (:3,\$), perform a global command against all lines that begin with a pound symbol (g/^#/). The command to be performed on these lines is to copy line number 2 (2 co) to just above (-1) the line currently selected by global. Note that -1 is dash one, meaning one line above the current line, +3 would mean three lines below the current line. We could have written just above the current line this way: -1, since period means current line.

## THE POWER OF TWO

Next let's try a global operation using two commands. Presume we want to delete all lines that match a pattern, but we also want to browse them in case there was something we needed. The command **vi/^#/p** would print the lines. Since we want to do two commands (delete and print), we must separate the two commands (confusingly) with a pipe symbol (don't think of a shell pipe, in this case the pipe just means the end of one command, there is nothing being "piped"):

```
vi/^#/p|d
```

This command will print all lines that begin with a pound symbol, and also delete them. If you notice by looking at the print output that some should not have been deleted, use :u to undo the delete.

Another example of performing multiple commands might be if we want to extract certain lines from a file

into another, and delete those lines in the original file. Here is a way to do that with one command:

```
vi/Texas/.w >>texans|d
```

The command above will: for each line that has "Texas" on it (vi/Texas/), write that line to a file named "texans" (.w>>texans), then delete each of those lines (|d). Note that the period before the write means current line, so .w means write the current line, just like 12w means write line 12. Instead of deleting the lines that were written to the "texans" file, we could have moved those lines to the end of the current file:

```
vi/Texas/.w >>texans|.mo$
```

Note that sometimes **ex** allows spaces, and sometimes gets confused by them. The example above works best without any space characters in it.

## :V IS FOR VICTORY?

As a final note, there is another command supported by most versions of **vi** named :v. I don't know what it stands for, but :v acts on lines that are NOT matched by the supplied pattern. This is similar in operation to the -v option of **grep**. This could also be accomplished by inverting pattern lines with the ! symbol immediately following the **vi**. For example:

```
vi/^#/l
```

The command above lists (that is an ell, not a one) all lines that start with a pound symbol (show end of line with a dollar symbol, and make tabs visible).

```
:v/^#/l
```

```
vi!/^#/l
```

Both of the above commands will list all lines that do not start with a pound symbol.

I never expected the global command to take up a whole column, but since it has, we will save the rest of **vi** for a future column. Unless I get plenty of e-mail. ♦

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# Will Linux Impact Network Management?

Before I answer that question let's look at what makes the other operating systems, HP-UX, Solaris and Microsoft NT, successful as a platform for network management:

## MARKET ACCEPTANCE AND MARKET SHARE

HP-UX, Solaris and NT have a significant operating system market share. These three operating systems comprise almost 90 percent of the market. These numbers explain why HP OpenView Network Node manager is only available on these platforms.

## RELIABLE HARDWARE WITH BUNDLED OPERATING SYSTEMS

From the humble beginnings of commercial UNIX systems in the mid '80s to NT of the '90s, HP-UX, Solaris and NT have been bundled with some of the most reliable computer hardware available.

## FLEXIBLE DEVELOPMENT ENVIRONMENTS

What can I say more than C, C++ and Visual Basic?

## EXCELLENT SUPPORT

All three of the operating systems have excellent support systems available. From commercial help desk support contracts to technical mailing lists and Web sites.

## LOW COST COMPARED TO THE COMPETITION

When network management started on HP-UX and SunOS in the early '80s UNIX software and workstations were far cheaper than the mini and mainframe computers of the day. When Microsoft NT came along it was far cheaper than the UNIX machines of the day. Most of that disparity has leveled off today.

So what can we say about Linux? How does it compare?

## MARKET ACCEPTANCE AND MARKET SHARE

Linux has an increasing market share that is going to make it a player in the future.

## RELIABLE HARDWARE WITH BUNDLED OPERATING SYSTEMS

Linux can run on any Intel or Sun platform. Linux is also available on some highly sophisticated dedicated high availability, multi-processor, enterprise server class machines. These are the same class machines available to all the other operating systems.

## FLEXIBLE DEVELOPMENT ENVIRONMENTS

What can I say about C, C++ and a

variety of free tools? Unfortunately, the most sophisticated development tools are going to cost for Linux just like the other platforms.

## EXCELLENT SUPPORT

As with the other operating systems commercial help desk support contracts are available from a variety of companies. Besides commercial support, a huge amount of free support is available on the Internet.

## LOW COST COMPARED TO THE COMPETITION

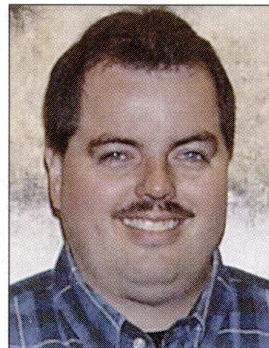
The competition for Linux is HP-UX, Solaris

and NT. Linux is free. That makes it a lower cost solution compared to the others. Does that make the hardware and support any less expensive? Not at all.

Where does that leave us? Linux has some advantages over NT in functionality and maybe reliability. It has some cost advantages over the HP-UX and Solaris, but is it enough to declare it a winner? I don't think so on the merits of the operating system alone, but what if the Linux "open source" movement produces an "open source" network management toolset?

According to an informed source, HP was planning to release a Linux version of OpenView Network Node Manager by the beginning of this year. That date has slipped to about June 2000. So, is an "open source" version of Network Node Manager in the works?

IMHO, not likely. ♦



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**Linux is free. That makes it a lower cost solution compared to HP-UX and Solaris.**

**Does that make the hardware and support any less expensive? Not at all.**



# HP OpenMail Call For Linux

HP HAS PORTED OpenMail, its enterprise electronic mail product, to Linux. The port is part of HP's ongoing commitment to supporting the open source operating

system. A full function version of OpenMail supporting a limited number of users is bundled with Professional of Red Hat Linux version 6.1.

HP has often touted OpenMail as an alternative to Microsoft Exchange and Lotus Notes. By providing a UNIX-based e-mail solution (HP-UX, AIX and Solaris) they've tried to position it as a scalable and reliable alternative to Windows NT-based products which are taking the messaging market by storm. Exchange in particular has made major inroads with implementations of tens of thousands of seats being announced monthly by Microsoft and partners, such as Compaq.

HP OpenMail is a UNIX based e-mail and collaboration product. Until the Linux release, it was available for HP-UX, AIX and Solaris. OpenMail works with many clients, including Microsoft Outlook and Lotus cc:Mail. It supports many standard messaging protocols, such as SMTP, IMAP3, POP3 and LDAP.

## THE MILLION MAIL MARCH

Nevertheless, using OpenMail as a solution has some compelling advantages. Installing it on an HP-UX platform allows it to scale to huge sizes. In its marketing literature, HP has claimed "we have demonstrated OpenMail servers supporting a million users." While I doubt these are production servers, such a demonstration would go a long way towards convincing anyone of OpenMail's scalability.

Coupled with the high-availability features of HP's ServiceGuard products, OpenMail can easily be used for

the most critical messaging applications in large enterprises. But what about Linux?

Well, NT is making inroads in smaller organizations and for departmental applications in large enterprises. Traditional UNIX systems, such as HP-UX, have a hard time competing with the lower licensing costs and "generic" hardware requirements of NT. On the other hand, Linux, with its Open Source licensing and ability to run on a variety of hardware, is positioned to go head-to-head with NT in smaller installations.

## A TIP OF THE RED HAT

Given these facts, HP ported OpenMail to capture the smaller organization and provide an upgrade path to HP-UX – if the installations grow. Given HP's relationship with Red Hat, which includes shipping HP NetServers with Red Hat Linux preinstalled, making OpenMail part of the packaging is a solid strategy.

The latest version of Red Hat Linux is 6.1. There are three bundles of the software. The "Standard" package includes the base operating system and 90 day Web-based support (list price \$29.95). The "Deluxe" package includes the base OS, a set of add-on software packages called Power Tools and 30 day telephone installation support (list price: \$79.95).

The "Professional" package includes

the deluxe plus the 128-bit encryption version of the Apache server and 30 day Apache configuration support. Also included is the server bonus pack,

three CDs filled with all sorts of goodies, including HP OpenMail for Linux, version 6.0.

Installation of Red Hat 6.1 is pretty straightforward. If you've used an older version of Red Hat, you'll be surprised by the new graphical installation program. Taking a page from the Caldera OpenLinux distribution, the new installation supports the use of a mouse to select

such basics as language and keyboard type. Oddly enough, you still have to select a mouse type, even though it seems to be detected just fine.

## GNOME MAN'S LAN

Once past the basics, you can select a new install or upgrade and other various packages to install. You can select various pre-configured sets of packages. For instance, selecting the server set adds things, such as a domain name server. You can also select the type of X-windows interface such as the venerable (and reliable) KDE or the newest GNU project, Gnome.

Gnome, selected by default, seems to be designed to offer a Microsoft Windows type experience out of the box. Basic icons appear on the desktop such as a shortcut to your home directory and browser links to various Linux sites. After package selection,



Ryan Maley  
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you can partition your drive with the graphical Disk Druid, an advancement over the older Linux partitioning programs, such as fdisk. The new install also allows you to add non-privileged users during the install. This will hopefully help deter many Linux devotees from using root as their only login name and causing security minded folks to cringe.

Another nice feature of the install is to, by default, enable MD5 and shadow passwords. MD5 passwords allows extra long passwords up to 255 characters. The shadow password system stores the passwords in the /etc/shadow file instead of the /etc/passwd file. The shadow file is accessible only by root and helps with the most basic hacker attack, a brute force attack on the password file.

#### DO YOU COPY?

After configuring the video card and monitor type, the installation proceeds with copying files. My installation, with basic workstation services and a

**Traditional UNIX systems, such as HP-UX, have a hard time competing with the lower licensing costs and "generic" hardware requirements of NT. On the other hand, Linux, with its Open Source licensing and ability to run on a variety of hardware, is perfectly positioned to go head to head with NT in smaller installations.**

Web server installed, required 369MB. A swap file of 50MB still kept the disk requirements very low. In a world where NT video drivers require 15MB and word processors require 100MB, it's nice to know you can still build a server on a 500MB disk (even if you can't buy one).

Linux still has a way to go on ease of use relative to NT. Basics such as monitor detection still need to be done manually. The graphical installation program didn't allow the use of a keyboard to select the next and

back buttons. These are quibbles for the digerati, but for part-time system administrators, Linux is daunting.

Attempts at plug-and-play are evident. Kudzu was on my system, which recognized my Microsoft mouse and offered to replace the default generic mouse with the appropriate software. But, until Linux plug-and-play is in full swing, Windows-based competitors have nothing to fear on the ease of use front.

Next month, installing and configuring HP OpenMail! ♦

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# Channel Crossings

## Internet Growth Intensifies Need For Value-Added Resellers

In a few short years, the Internet has gone from being a novelty ("What's e-mail?"), to an up-and-coming trend ("Would you buy stuff on the Internet?"), to an overwhelming fact of life ("Omgosh, we've got to get on the Web before we're out of business!"). The evidence is clear. The number of worldwide Internet users will grow from 172 million today to 282 million just two short years from now, while business-to-business (B2B) electronic commerce is expected to reach \$3 trillion in 2003 in North America alone.

While the Internet keeps social theorists busy guessing about the future, the reality is that it's up to businesses across all industries to make it work on a day-to-day basis. That means designing, installing and maintaining extensive IT systems positioned to take advantage of this tremendous opportunity, particularly in the B2B space.

That's a tall order for any company, but particularly for small- to mid-market companies which can have limited resources and technical staffs. That's where the IT value-added reseller (VAR), or IT infrastructure provider comes in. A skilled infrastructure provider can be a key partner for companies in need of developing robust solutions for Internet business and other enterprise business needs. Infrastructure providers, such as those operating through the HP channel, can offer a wide variety of services, including:

*Evaluating and recommending IT system components.* No business environment consists of just one brand of computer equipment. For example, while you may operate HP servers, you may also use Cisco Systems for vital Internet networking equipment and EMC for storage. Also, many companies have servers from different manufacturers pur-



chased at different times. A skilled partner can help you tie all these disparate components together.

*Managing manufacturer relations.* IT systems consist of equipment from multiple manufacturers, yet small- to mid-market companies would be hard pressed to maintain high-level relationships with more than one of those manufacturers in the same way a major IT infrastructure provider can. It's the VAR's job to maintain close relationships with its key manufacturers; by partnering with a reseller, customers leverage that extensive knowledge and relationship base.

*End-to-end responsibility.* When multiple vendors are involved in a computing project, no one takes complete responsibility for the project's success. However, a competent infrastructure provider should maintain end-to-end responsibility for the success of its projects, providing a single point of contact and eliminating potential finger pointing among vendors if difficulties surface.

*"Best of breed" answers for e-business.* The best infrastructure providers are able to guide their customers through all facets of Internet projects. This requires teaming with leading players across all e-commerce market segments, from high-level management consulting partners to software partners. Working with its alliance partners, the provider can

**Phil Woudenberg**

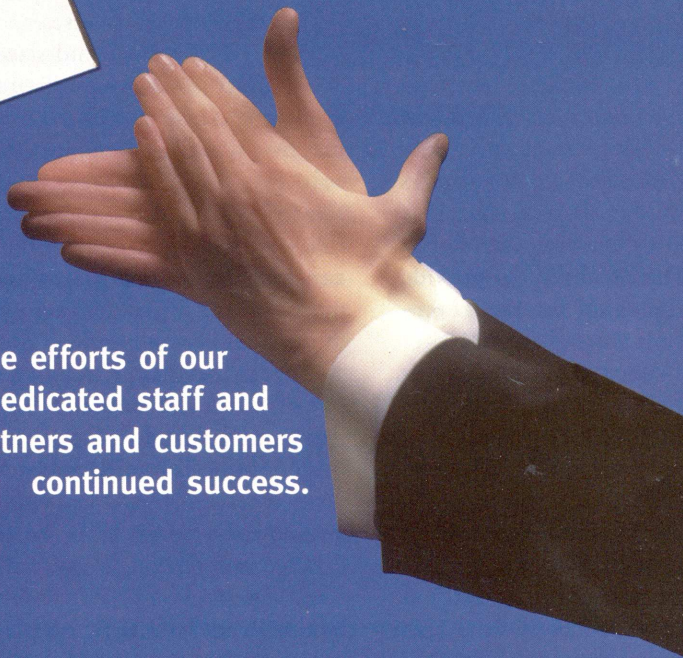


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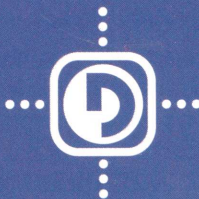
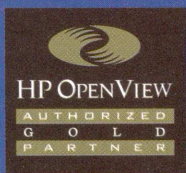
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guide customers through the entire e-business solution: strategy, procurement, security, integration with the back end, infrastructure and more. This approach will give users an optimum e-business solution in the shortest possible time frame, allowing for maximum ROI on the technology investment.

*Better buying, billing and financing.* By using an established, successful infrastructure partner, customers can take advantage of concen-

**The best infrastructure providers guide their customers through all facets of Internet projects.**

trated buying power, as the infrastructure provider is dealing with key components in significant volumes virtually every day. It is a good idea for customers to examine their infrastructure partner's ability to provide technology financing for their computing environment; a reseller that can provide financing and leasing services truly offers a full-service, single-source solution for the customer.

### E-BUSINESS BOOM

The move to e-business has created tremendous opportunities for companies to expand into new markets and upgrade business processes. It is also creating tremendous risk. Building an effective e-business computing environment is both challenging and unfamiliar for many companies.

Companies that are developing an e-business presence must change their computing environments to accommodate this, along with many other new business demands. An experienced infrastructure provider can help companies navigate this change. Having a single point of contact can be particularly important for HP users because Hewlett-Packard,

which has an excellent server line capable of being used in diverse business environments, has chosen to team with a number of third-party business partners to create its Internet networking solutions.

The potential benefits of this approach are great. Because it incorporates multiple partners, HP's Internet solutions set is more advanced and offers more options than that of many of its competitors. For example, HP has opened up its hardware platform to make it available to many different applications developers. Furthermore, they've invested in many of those software developers. This helps HP build symbiotic relationships that take advantage of the entrepreneurial culture at these new enterprises.

The typical mid-sized company is not in a position to fully evaluate the offerings of the numerous players required to build an e-business solution. Unfortunately, a lack of awareness or understanding of what a full service e-business solution entails can end up costing a company far more than they would have paid for the services of a value-added reseller.

That makes it even more important for HP users to consider using an infrastructure partner that truly understands how all these components work together. Ideally, the partner should be able to perform a detailed and thorough up-front analysis to determine its customer's overall business goals and link this to the objectives for e-business.

### B2B IN Y2K

While much of the buzz about the Internet focuses on consumer transactions, the future of B2B Internet applications is even more promising. In fact, several research studies have shown that B2B spending will far exceed consumer spending on the Internet. As a result, even businesses that have little or nothing to do with the consumer market must build a robust Internet presence.

It has been estimated that, by 2003, more than 65 percent of B2B e-business purchases will be made in six major segments of the economy: government, high tech, retail, industrial equipment, motor vehicles and shipping. E-business penetration in these sectors will have an even broader impact, since suppliers converting to B2B e-business to meet the needs of clients in these sectors will likely use that new infrastructure in their relationships with customers from other industries. Accordingly, good supply chain management today depends more and more on e-business solutions.

In fact, we are seeing numerous new and innovative B2B e-business initiatives at financial, manufacturing and other organizations. For example, most automotive manufacturers deal with thousands of different parts and components suppliers and are moving to all-electronic procurement systems. That means that, for example, a mirror company with 200 employees now has to deal with the auto manufacturer via the Web. The auto manufacturer gives them the electronic specifications, but it's up to the supplier to install a new Web-based financial transaction system. In this "sink or swim" environment, an IT infrastructure provider can help guide its customers through this sometimes nerve-wracking process.

### WHY DOES HP USE RESELLERS?

If the market for technology infrastructure is so important, why don't companies, such as HP, sell directly to all their customers? The answer is that HP and other manufacturers focus on what they do best: Selling systems to their largest customers. HP's team of sales representatives is relatively small and focuses on Fortune 100 clients that make exceptionally large purchases. In most instances, however, hardware manufacturers "outsource" the sales function to value-added resellers in order to leverage the existing relationships that the resellers have with customers.



Major manufacturers, such as HP, generally have "channel managers" to monitor the business practices of their resellers to make sure they are operating in the same manner as an HP sales rep would. This helps produce an exceptionally close relationship between the manufacturer and the reseller. For example, HP calls their own sales force "on-payroll HP sales reps" while they refer to their major resellers as "off-payroll HP sales reps."

It is also important to note the differences among resellers. While some smaller resellers are content to work on one or two deals a week, they don't have the knowledge capital, resources and national reach of HP's top class of Enterprise Resellers. In today's market, thorough and rapid implementation of computer systems and networking equipment is vital. An Enterprise Reseller will provide implementation services for a wide range of e-business and technology initiatives, including UNIX, network-

ing, NT, storage solutions, ERP solutions and enterprise systems management services.

#### IN THE HP CHANNEL

As we move into this new century, the HP channel represents some of the best commercial server products for e-business and other important technology initiatives. HP has clearly demonstrated its commitment to meeting the needs of all of its customers. For example, with HP's "instant capacity on demand," a customer can purchase a system with four CPUs. Then, for a nominal maintenance fee, the customer can have the option of turning on - through a keyboard command - additional CPUs that were built into the system when it was installed. That's a big advantage for customers since they don't have to buy the CPUs up front, and they have 30 days to pay for them when they do need to turn them on. HP is the only manufacturer to have this option on

all their servers, including the L-Class, N-Class and V-class.

In the rapidly changing world of business, which is more and more dependent on the Internet, customers who partner with qualified infrastructure providers are well positioned for ongoing success.

— Phil Woudenberg is Director of Hewlett-Packard Products and Services at Forsythe Solutions Group, HP's largest reseller. He has 17 years of experience in the technology industry and is an expert in the assessment, design and configuration of UNIX systems.

*Editor's Note: While its designation according to HP is "Master Best-in-Class Enterprise Reseller," Forsythe prefers to be known as a full-service provider of technology solutions. By focusing on total solutions, they have served an increasing customer base in a changing technology environment for over 29 years.*

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### **GFI Releases Eicon DIVA Server PRI Drivers**

GFI's Eicon PRI drivers support Eicon Technology's new DIVA Server PRI-30M and gives FAXmaker users the ability to use the Primary Rate Interface (PRI) telephone service. When used with FAXmaker, the DIVA Server PRI-30M offers greater bandwidth for fax transmission and enables users to send and receive 30 faxes at a time.

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### **Reflection X For Sun's Solstice Network Client**

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### **Imperial's MegaRam-370**

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Contact Imperial at (800) 451-0666, or visit their Web site at [www.imperialtech.com](http://www.imperialtech.com).

### **MTI Adds Pathfinder to DataServices**

MTI Technology added PathFinder for Windows NT to its DataServices software. PathFinder is the first in a series of software modules designed to provide host-side Fibre Channel adapter fault protection for systems connected to MTI's Vivant storage servers. To do this, PathFinder corrects potential failures that may occur in the data path between the host system and the Fibre Channel storage server; then maintains continual access to the Vivant storage server by locating and redirecting data to an alternate functioning path.

PathFinder for Windows NT is available for MTI's Vivant

storage servers and is priced from \$3,500 per server.

Contact MTI at (800) 999-9MTI, (714) 970-0300, or e-mail to [info@mti.com](mailto:info@mti.com), or visit [www.mti.com](http://www.mti.com).

### **Workstation Solutions' Quick Restore 2.6**

Workstation Solutions' Quick Restore 2.6 is available with centralized enterprise NetApp filer-to-UNIX server NDMP backup and recovery. Quick Restore 2.6 enables NetApp customers to back up to a centrally located backup server with an attached tape library. Quick Restore 2.6 features new Linux support allows customers to choose an Intel- or AMD-based Linux server as a central administrative backup server. Quick Restore lets users backup from a filer to UNIX or Linux backup server's tape library; backup from a filer to a local tape device; backup from a filer to another filer's tape device via the network and backup from a UNIX, Linux or Windows NT server to a filer with a local tape device. Each of these capabilities comes standard and at no extra charge.

In a related announcement, Workstation Solutions announced Quick Restore 2.6 for Red Hat Linux servers and clients. Linux-based Quick Restore backup servers can manage backup and recovery in networks of Linux, Windows NT, commercial UNIX and Network Appliance systems. It is seamlessly integrated with all other platforms, allowing backup and recovery of UNIX, Windows NT or Network Appliance data to tape libraries attached to Linux servers.

Quick Restore 2.6 will soon be available for Red Hat Linux 5 and 6. Linux single server licenses start at \$2,500; unlimited licenses for Red Hat Linux 4.2, 5 and 6 are free of charge.

Contact Workstation Solutions at (800) 487-0080, or visit [www.worksta.com](http://www.worksta.com).

### **Syntax e-BizFS Solution**

Syntax Systems' e-Business File System (e-Biz-FS), is a solution within Open Enterprise Services. e-BizFS lets users drag and drop any file in any format into any file system in the enterprise, and to use any file in any file system in the enterprise. Users can then search and view files from any desktop through a standard Web browser, Windows Explorer, Macintosh Chooser or NetWare for Windows. Open Enterprise Services includes Open Authentication Services, Open Administration Services, Open Directory Services, e-BizFS Services, Output Services and Transport Services.

Contact Syntax at (253) 838-2626, or visit [www.syntax.com](http://www.syntax.com).

### **Baan CODA E-Finance**

Baan CODA E-Finance is an E-enabled finance solution which is based on the Baan CODA Financials product suite. Baan CODA E-Finance leverages an Internet architecture to securely distribute and share financial information across the extended enterprise, including delivery of accounting information to palm-top and internet devices. Baan CODA E-Financials solution features a hand-held device access to financial information through a true thin client.

Baan CODA E-Finance also enables access to financial information directly from the corporate intranet or situations requiring thin-client based remote access. Baan CODA E-Finance will be available in the first quarter of 2000.

Visit Baan at [www.baan.com](http://www.baan.com).

### **CollabWare's GS-Design Internet CAD Software**

CollabWare announced the commercial availability of GS-Design, a high-end solids-modeling 3D CAD system designed for use over the Internet. GS-Design is an aerospace-grade CAD system, capa-



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ble of modeling ultra-large assemblies and managing a vast number of design configurations. It has a Web-based, three-tier architecture and provides for true collaborative design between multiple users, no matter where users are located. GS-Design manages revisions and configurations and provides secure central storage of design data. The state of the design can be seen in realtime, eliminating version control problems.

GS-Design is available for rent on a month-to-month subscription basis over the Internet. Users can download the beta software from the CollabWare Web site. Visit [www.collabware.com](http://www.collabware.com).

### **Pine Cone's Evergreen Service**

Pine Cone Systems' Evergreen is a Web-hosted data warehousing management subscription service solution. Evergreen delivers secure performance and activity metrics to data warehousing managers via the Internet. For a monthly subscription fee, subscribers will receive daily web-based updates and periodic trend analysis and specific recommendations from an on-line data warehousing consultant. Subscribers will also receive Pine Cone's Activity Tracker software for real-time activity and performance monitoring and analysis, with its proactive alerting for on-site monitoring of current and recent activity.

Contact Pine Cone at (303) 221-4000 or [www.pine-cone.com](http://www.pine-cone.com).

### **SST-Resource Availability V3.4**

Softworks made available its SST-Resource Availability version 3.4. Enhancements to SST-Resource Availability 3.4 include reporting on historical storage utilization on open systems platforms, wider platform coverage for Oracle's database space management and IBM's ADSM enterprise backup management, and a logical correlation between OS/390's view of hardware devices and the EMC SYMMETRIX and STK tape silo environments.

Version 3.4 is built on an architecture that supports proactive, intelligent agents that monitor, fix and notify when storage related problems are detected. It supports logical and physical storage systems used by OS/390, MVS, UNIX and Windows NT. SST-Resource Availability 3.4 also offers support for HSM, SMS, ADSM and EMC SYMMETRIX subsystems; and Oracle and DB2 relational database management systems.

SST-Resource Availability can be purchased under a range of options designed to match customer requirements, with pricing beginning at \$57,000. It is available directly through Softworks or through their network of distributors.

Contact Softworks at (800) 727-4422.

### **ASG Releases ASG-Impact Expert**

Allen Systems Group released ASG-IMPACT Expert, which provides a graphical interface to create rule-based expert systems that emulate the problem-solving capabilities of human experts specializing in areas of business including software development and hardware configuration. ASG-IMPACT Expert can be started from within the LAN environment and is Web-enabled via ASG-KnowledgeWave. It provides instant, online guidance for service desk personnel in gathering the appropriate information and providing an answer or resolution to an "expert" question. ASG-IMPACT Expert can be tailored to fit site-specific situations and can be used throughout the organization.

Contact ASG at (941) 435-2200, or visit [marnis@asg.com](mailto:marnis@asg.com).

### **Cygnus Source-Navigator V4.5**

Source-Navigator version 4.5 is now available from Cygnus Solutions. Source-Navigator is an advanced code comprehension

tool for software developers to understand, re-engineer and migrate complex code faster. Two version of Source-Navigator 4.5 are being offered: The Developer version, which supports smaller projects of up to 250,000 lines of code; and the Enterprise version, which includes unlimited line support as well as support for cross-platform development on Windows, Solaris, HP-UX and major Linux distributions. Key features of Source-Navigator 4.5 include multi-language parsers, multiple platform support, visual interface, IDE compatibility and interfaces to leading version control systems.

Source-Navigator includes a project editor and database, a set of integrated browsers, advanced project search tools and a user's guide. The Enterprise version is now shipping on Red Hat Linux 5.2/6.0, Caldera Linux 2.2, SuSE Linux 6.0/6.1, Windows 95/98/NT, Solaris 2.5.1 or higher and HP-UX 10.20 or higher platforms. A single seat copy with unlimited line support is \$499 and includes the Cygnus Source-Navigator Software Developer's Kit. The Developer version is \$199. Both versions can be purchased through Cygnus' web site.

Contact Cygnus at (800) CUGNUS-1, or visit [www.cygnus.com](http://www.cygnus.com).

### **FileMaker Server 5**

FileMaker Server 5 is a software application for hosting FileMaker Pro 5 databases. The new FileMaker Server 5 features an increased database hosting for up to 250 FileMaker Pro database clients and 125 open FileMaker Pro 5 files. The new version offers increased network performance, the ability to automate and centralize backups, scalable deployment, auto disconnect for idle guests, compatibility with Windows 95/95/98/NT and Mac OS systems, remote administration, preferred IP addressing, the ability to host single user files, cache flush and exact file content match support.

Retail cost is \$999, with volume pricing available under FileMaker volume license programs. Upgrades from previous versions of FileMaker Server are available for \$499.

Contact FileMaker at (800) 725-2747 or visit [www.filemaker.com/products/fms/home.html](http://www.filemaker.com/products/fms/home.html).

### **NetSupport Manager 5.0**

NetSupport's NetSupport Manager 5.0 is a PC remote control that allows administrators, help desk representatives, tech support, and telecommuters to remotely control a PC or group of PCs and enabling real-time visual instruction, file retrieval or remote operation and management. Version 5.0 new features include Voice over IP (VoIP), remote PC inventory, support for Windows 2000, enhanced security, additional scripting and enhanced performance. NetSupport 5.0 starts at \$189 for a single user license for use on one client and one control PC and is available through select resellers.

Contact NetSupport at (888) 665-0808.

### **Ominitron's FlexSwitch**

Ominitron Systems' FlexSwitch 600XC 2Gx 2-port Gigabit Ethernet switch repeater is able to increase network distances up to 50 km from the standard 5km and also functions as a fiber converter to connect Gigabit network segments of different fiber types to regenerate signals for maximum network performance. Should distances of longer than 50 km be required, the FlexSwitch 600XC 2Gx can be cascaded and support multiple segments of up to 50 km each. The FlexSwitch 600XC 2Gx features full wire-speed performance and plug-and-play installation. When used as a fiber converter, it offers conversion



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between multimode 850nm, single-mode 1300 nm and single-mode 1550 nm fiber options.

The FlexSwitch 600XC 2Gx's list price starts at \$1,495 for models with an external power adapter; \$1,545 for models with an internal power supply. A free lifetime warranty and 7x24 technical support are included.

Contact Omnitron Systems at (800) 675-8410, or visit their Web site at [www.omnitron-systems.com](http://www.omnitron-systems.com).

### VSI-FAX 4.0

V-Systems' VSI-FAX 4.0 provides both integrated and desktop management capabilities for Windows NT, UNIX and Linux; and comes with new centralized management features. It supports an unlimited number of network users and can be easily integrated across Windows NT, UNIX and Linux platforms to fax-enable applications and workflow processes.

Users can fax any document from any application to automate communications. Included with VSI-FAX 4.0 is a new VSI Web Fax Client, enabling users to send and receive faxes via any Web browser. A new Outlook Fax Client, enabling users to send, receive and manage faxes without leaving Outlook, is also included. VSI-FAX 4.0 comes with a new Integrator's Toolkit that includes a Software Developer's Kit, and features improved Fax Merge and Print-to-Fax support for popular office suites.

Contact VSI at (800) 556-4874, [sales@vsi.com](mailto:sales@vsi.com), or visit [www.vsi.com](http://www.vsi.com).

### Free SarCheck For SCO UNIX

To thank the SCO UNIX community for its support over the past five years, Aurora Software Inc. announced that its SarCheck for SCO UNIX 3.2v4 is now available for free. SarCheck, a performance management tool, is designed to assist system administrators and VARs in the analysis of a UNIX system's performance by translating the output of various monitoring utilities into a plain English report.

It identifies performance bottlenecks, runaway processes and memory leaks; recommends changes to the tunable parameters and hardware configuration; and quantifies the amount of remaining system capacity. It also helps VARs to identify problems remotely and to recommend or implement corrective actions.

The free version of SarCheck for SCO UNIX 3.2v4 contains new options for inserting HTML tags into its output.

Visit Aurora Systems' Web site at [www.sarcheck.com](http://www.sarcheck.com).

### Camintonn Upgrades Memory for NetServer LXR 8500

Camintonn Corporation announced memory upgrades for HP's NetServer LXR 8500 data server PC. The new line of memory is available in modules that provide capacities that range from 256MB to 1GB, with standard memory for the NetServer system at 256MB with a current maximum memory of 32GB. Camintonn's high bandwidth memory synchronizes itself with the system clock that controls the CPU, allowing the SDRAM to eliminate time delays while offering bandwidths of up to 100MHz. Camintonn Memory is currently available in the following configurations: 256MB for \$640; 512MB for \$1,403.

Contact Camintonn at (949) 454-1500, [www.camintonn.com](http://www.camintonn.com).

### Mercury Interactive's LoadRunner ActiveTest

Mercury Interactive Corp. debuted LoadRunner ActiveTest, a hosted Web-based load testing e-service that is designed to identify

bottlenecks and pinpoint capacity constraints and, therefore, optimize Web site performance.

LoadRunner ActiveTest stress tests Web sites with actual traffic before they go live and provides real time graphs and reports to organizations. It is a hosted e-service in which all testing is done remotely over the Web by Mercury Interactive's load testing experts. Mercury Interactive's staff works with in-house personnel to define load scenarios, develop test scripts, manage the testing process and provide recommendations for optimum performance. LoadRunner ActiveTest starts at \$15,000 for scheduled service.

Contact Mercury Interactive at [www.merc-int.com](http://www.merc-int.com).

### Visual Numerics' JWAVE 3.0

Visual Numerics JWAVE 3.0 is a client/server solution using Java components to develop and deploy 100 percent Java applications across an enterprise via the Internet or an intranet. New features introduced with version 3.0 include expanded connection choices for linking JWAVE with an organization's enterprise architecture, the addition of 76 mathematical and statistical analysis functions from Visual Numerics' IMSL C Numerical Library and first-time support for the Linux operating system. JWAVE supports servers and desktop computers running Linux, UNIX or Windows NT.

Cost for a JWAVE 3.0 starter kit, including a single-user license and two client developer licenses, is \$8,795.

Contact Visual Numerics at (303) 939-8797 or [www.vni.com](http://www.vni.com).

### APCON's AUTOSWITCH 2000

APCON's AUTOSWITCH 2000 automates switching of peripherals across multiple servers on a network. AUTOSWITCH 2000 eliminates the need to manually facilitate tape and/or drive back-up system; it monitors activity and moves hardware devices within the network. AUTOSWITCH 2000 can be controlled locally or remotely through GUI interface. Available for Windows and UNIX platforms, AUTOSWITCH 2000 costs \$695, plus shipping from Portland.

Contact APCON at (503) 639-6700 or [www.apcon.com](http://www.apcon.com).

### BMC Software's RESOLVE for E-Business

BMC Software's RESOLVE for E-business Management solutions include RESOLVE Enterprise Snapshot for SQL-BackTrack and RESOLVE High Speed Transaction Recovery, for customers who rely on constant access to critical information that requires precise recovery and backup. Adding to the holistic approach to managing e-business environments, RESOLVE for E-business Management solutions allow customers to leave their databases open while making backups and recoveries.

RESOLVE High Speed Transaction Recovery: Provides maximum availability and improved transaction integrity by rapidly applying transaction-level updates to the database during recovery.

RESOLVE Enterprise Snapshot for SQL-BackTrack: Delivers continuous database availability and enhances database performance by reducing the impact of backup processing from hours to minutes.

Contact BMC at [www.bmc.com](http://www.bmc.com).

### WRQ and HP Sign Third Reflection X Agreement

WRQ established a third bundle agreement with HP to increase the reach of its WRQ Reflection Suite for X and Reflection NFS Connection software, which provide integration between Windows-based PCs and UNIX host systems. Through this third

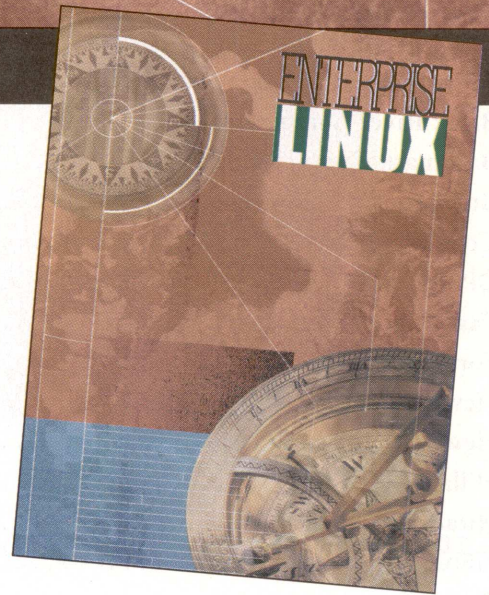


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### new products

agreement, HP will ship Reflection products both pre-installed and bundled with the new Windows NT-based VISUALIZE P600C, P650C and P700C Personal Workstations.

A local version of WRQ Reflection X software, which provides precise rendering and integration of UNIX graphical applications from a PC desktop, will be pre-installed on all new HP VISUALIZE P600C, P650C and P700C Personal Workstations. WRQ Reflection NFS Connection, a utility that provides critical printing and file transfer services between Windows-based PCs and UNIX host systems, will also be installed on the Workstations. In addition, the workstations will be bundled with a 60-day trial copy of WRQ Reflection Suite for X, which includes a full version of Reflection X able to run remote X clients plus VT, TN3270 and TN5250 emulations.

For more information, contact WRQ at (800) 872-2829, or visit [www.wrq.com](http://www.wrq.com).

### McData Offers HBAs

McData, providers of SAN switches, now offers a selection of host bus adapters (HBAs), the interface boards that link hosts and storage systems to a Fibre Channel-based switched fabric. McData's initial HBA products cover major server platforms, including Windows NT, PCI Solaris, Sun Solaris and Novell.

Contact McData at (800) 545-5773 or [www.mcdata.com](http://www.mcdata.com).

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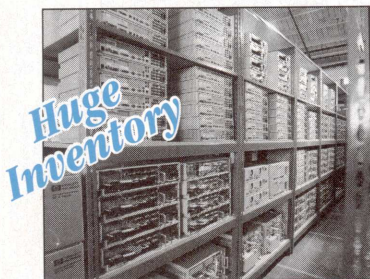
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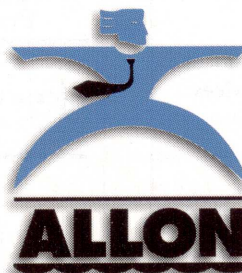
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### CIFS/9000 For HP-UX 11

The CIFS/9000 Common Internet File System for HP-UX 11 provides end-to-end UNIX and Windows system interoperability. With the CIFS/9000 client and server software, both Windows and HP-UX 11 platforms can be used interchangeably as file servers for each other. This file system also enables HP-UX 11 systems to have equal access to information stored on Windows 95/98, Windows 2000, Windows NT and HP's UNIX system platforms. In addition, CIFS/9000 for HP-UX 11 allows IT managers to use a single-user ID and password for client authentication into UNIX and Windows system environments.

### HP DeskJet 1220C

The HP DeskJet 1220C Professional Series color inkjet printer delivers professional-quality graphics output (9.5 ppm) and high-performance text printing (11 ppm) for business and home-office users with either PC or Mac systems. The DeskJet 1220C printer is a wide-format printer with three paper paths, including a direct path accommodating media weights of up to 67 pounds. The DeskJet 1220C printer also incorporates HP PhotoREt III enhanced color-layering technology which uses up to 29 drops of ink for each dot in a printed image, allowing the printer to generate 17 different shade levels for each of the primary colors. The DeskJet 1220C printer also offers an alternative photo mode that prints at 2,400 dpi on photo paper.

The DeskJet 1220C printer ships with Windows NT 4.0, Windows 98, Windows 95, Windows 3.1 and Mac OS 8.1 drivers in the box, and supports IEEE parallel and USB connects. It can be networked with an optional HP JetDirect print server and has a duty cycle of 5,000 pages per month.

### New HP Pavilion Notebooks

HP Pavilion notebook PCs integrate Mobile AMD-K6-2-P and Intel Pentium II CPUs. The HP Pavilion N3210 notebook PC with the Mobile AMD-K6-2-P 433MHz CPU has a 12.1-inch HPA screen, 32MB SDRAM, 4.3GB hard-disk drive. The HP Pavilion N3250 PC with the Mobile AMD-K6-2-P 475MHz CPU features a 12.1-inch TFT screen, 64MB SDRAM, 6.0GB hard-disk drive, 6X DVD-ROM drive with Dolby Pro Logic Surround sound and Polk Audio.

The HP Pavilion N3270 PC with the Mobile AMD-K6-2-P 475MHz CPU includes a 14.1-inch TFT XGA screen, 64MB SDRAM, 6.0GB hard-disk drive, 6X DVD-ROM drive with Dolby Pro Logic Surround sound and Polk Audio. The HP Pavilion N3290 PC with the Pentium III 500MHz CPU has 14.1-inch TFT XGA screen, 64MB SDRAM, 6.0GB hard-disk drive, 6X DVD multimedia drive with Dolby Pro Logic Surround sound and Polk Audio.

### Worldwide Sales Initiative For Red Hat And HP

Red Hat Inc. and HP have formed an alliance aimed at expanding sales of their solutions in three ways: HP's Linux version of OpenMail will be made available for direct purchase through Red Hat's portal, located at [www.redhat.com/store](http://www.redhat.com/store); Red Hat has included a fully functional copy of OpenMail in boxes of Red Hat 6.1 Professional. And, this agreement is the first alliance under The Red Hat Reseller Program, which includes Red Hat Reseller Starter Kits – a channel solution designed to give resellers the pricing, product, training and support.

### New Services For SureStore XP256

HP will provide end-to-end support for the XP256 and HP NetServer systems, as well as for NT servers from Compaq, Dell and IBM. HP will help customers design and implement consolidation infrastructure and maximize uptime with NT consulting services, such as HP SureStore E data migration. HP will provide customers with a single point of contact for their support needs, and HP's Microsoft-certified staff will offer services ranging from telephone support to 24x7 same-day, on-site service for mission-critical environments.

### SureStore E 10/180 Tape Library

The HP SureStore E 10/180 tape library, part of a new family of scalable, is a high-end, high-availability backup system. The E 10/180 model can handle up to 6.9TB of data (native) and can be configured to match current and future application requirements. In a maximum configuration, the library, which supports current and future tape-drive technologies, can house up to 10 DLT8000 drives (or six HP 9840 drives) and up to 174 tape cartridges. The HP SureStore E 10/180 features built-in redundancy for continued operation in the event of component failure and supports both SCSI and Fibre Channel (via HP's SCSI-to-Fibre Channel bridge) connectivity options. The tape library supports current high-end drive technologies (DLT8000 and HP 9840 drives), as well as future drive technologies, including Linear Tape Open (LTO) and SuperDLT.

### Enhanced HP SureStore E Disk Array XP256

The XP256 has been enhanced with HP SureStore E Auto Path XP, a business-continuity feature for Windows NT that improves performance via load balancing and enables the disk array to connect with host servers via redundant network connections that support automatic failover. The XP256 already offers no single point of failure within the system hardware. The XP256 for Windows NT is currently available with an entry-level price of \$240,000. Additional pricing is available from local HP sales representatives or channel partners.

### SolidDesigner 2000

CoCreate Software Inc., an HP subsidiary, announced the addition of five new modules and other enhancements to SolidDesigner, a 3-D CAD program. The new modules include: SolidDesigner collaboration; teamwork management; and three bi-directional interfaces to CATIA, Pro/ENGINEER and Unigraphics that enable collaboration between product-development teams in process-centric environments. CoCreate also has extended SolidDesigner to support 3-D process models for 3-D-based collaboration. SolidDesigner 2000 introduces three new direct data interfaces to the CATIA, Pro/ENGINEER and Unigraphics CAD systems.

### HP TopTools

HP TopTools, HP OpenView and HP Web JetAdmin, and its Manageability Consulting Services will help give IT managers further network management and control capabilities in Windows 2000 environments. HP TopTools is a modular Web-based device-management software suite that allows IT managers to configure, manage and update device resources from any location within a network; and Web JetAdmin is a network peripheral-management software.



HP TopTools will integrate into the Windows 2000 environment, providing full support for the Microsoft Management Console. IT managers will have access to TopTools' remote asset management, fault management, configuration management and security management from within the interface of Windows 2000 Microsoft Management Console (MMC).

Customers can already plan Windows 2000 migration by using TopTools' powerful management and reporting capabilities to produce a Windows 2000 Migration Report. This report details HP Vectra corporate PCs, HP OmniBook notebook PCs and HP Kayak PC Workstations that meet Microsoft's recommended Windows 2000 hardware requirements.

The next release of HP TopTools will run on Windows 2000 and inventory Windows 2000-compatible devices. It will also support MMC, which, combined with HP TopTools PC query and trouble-shooting features, will give IT managers access to all critical data required to efficiently manage and service their networks. The next release of HP Web JetAdmin, will integrate Windows 2000 and extend HP OpenView to provide network printing.

HP TopTools is available for free from HP's Web site at [www.hp.com/toptools](http://www.hp.com/toptools). The new HP TopTools and HP Web JetAdmin versions will be available to customers later this year.

### HP Manageability Consulting Services

In a related announcement, HP Manageability Consulting Services can help customers design and rapidly deploy Windows 2000 environments to take full advantage of the manageability features of Windows 2000, HP TopTools and HP OpenView products. HP Server and Storage Consolidation Planning services can help IT managers consolidate the number of server and storage devices in an existing environment in conjunction with the deployment of Windows 2000 to build a more manageable network environment, reduce total cost of ownership and increase system availability.

### HP Changengine XML-Compliant with Bluestone

HP and Bluestone Software announced an agreement to integrate Bluestone's XML Suite Integration Server into HP Changengine, a business-process management system, to enable more flexible and dynamic Business-to-Business (B2B) trading.

This integration will allow B2B communications to make use of XML data formats and enable the entire business process to be managed by HP Changengine software, while taking advantage of Bluestone's scalability, fault tolerance and open standards design.

Collaborative processes between businesses will be made possible and will help fuel growth in online B2B trading. Even the smallest suppliers will be able to participate. Joint management of promotions will be made easier, orders will be able to be placed online, forecasts agreed to and monitored automatically, and sales data shared immediately.

HP Changengine enterprise process management is based on HP technology that enables automation and management of business processes across applications and organizations, within and beyond the enterprise. HP Changengine dynamically modifies business processes, independent of underlying applications and technologies, providing real-time management of the business environment. Information about HP Changengine can be found at [www.hp.com/go/changengine](http://www.hp.com/go/changengine).

For more information, call 888-Bluestone, send e-mail to [info@bluestone.com](mailto:info@bluestone.com), or visit [www.bluestone.com](http://www.bluestone.com).

### CABLExpress Offers Cash for Used Networking Equipment

CABLExpress, a supplier of certified, pre-owned networking equipment, has partnered with HP to create a buy back program for all brands of networking equipment. Through this TradeIn program, any piece of networking equipment is eligible for trade in and can be turned into cash to help customers transition to a new HP ProCurve network.

To take advantage of this program, visit the HP products section at [www.hp.com/go/procurve](http://www.hp.com/go/procurve). Next, click on the HP ProCurve TradeIn section and follow the CABLExpress link from the HP site, where users can list all the desired products to trade in. CABLExpress will then send a bid within 60 minutes for any unneeded networking equipment and soon thereafter, issue a check.

CABLExpress will offer cash or credit for all surplus equipment, including "as is" equipment, which can then be used towards the purchase of any new HP products. CABLExpress will also pay for all shipping costs and make shipping arrangements.

CABLExpress products include: networking hardware, testing equipment, mainframe data center products, computer cables and connectors, wiring systems, data communications equipment and midrange computer connectivity products. CABLExpress also provides technical support, corporate buying programs and quantity discounts.

For more information, call (800) 982-5197, or visit their Web sites at [www.hp.com/go/procurve](http://www.hp.com/go/procurve) and [www.cablexpress.com](http://www.cablexpress.com).

### Procom and HP Join for Network Storage Appliance

HP is incorporating Procom Technology's hardware platform and thin OS software into its products. Procom's technology will be a component of an NAS solution from HP that serves the Windows NT and UNIX markets. The solution will be part of HP's strategy to extend its presence in the NAS appliance market.

Contact Procom at (949) 852-1000, [info@procom.com](mailto:info@procom.com), or visit their Web site at [www.procom.com](http://www.procom.com).

### HP's Security for NT Extranets, Portals and E-Services

HP announced HP DomainGuard Enterprise 1.0, the first enterprise-class Web-access control solution developed specifically to address the security-management requirements of extranet portals. The new HP DomainGuard Enterprise 1.0 Web authorization manager provides centralized, role-based access control and single sign-on for all Web objects on multiple Microsoft IIS/NT Web servers, enabling enterprises to more quickly, easily and cost-effectively deploy and manage secure extranet applications.

HP DomainGuard Enterprise significantly reduces development and deployment costs and speeds time to market by eliminating the need to build security into each Web application. Its centralized security management and delegated administration features have reduced administration costs for customers by up to 50 percent.

More information can be found at [www.hp.com/security](http://www.hp.com/security).



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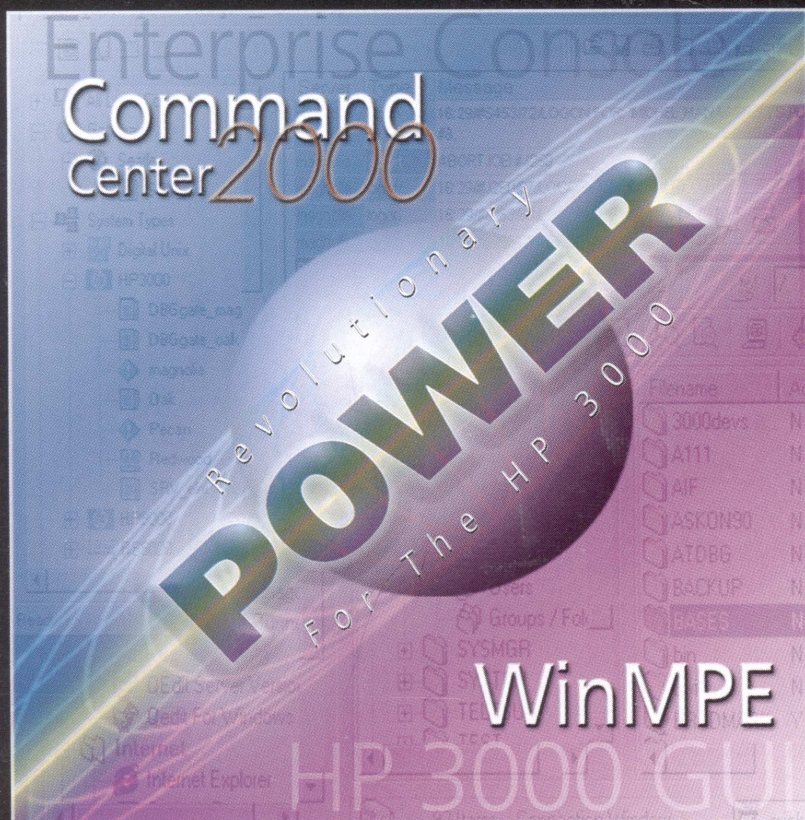
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